

Appl. No.: 10/611,507  
Amdt Dated: February 11, 2005  
Reply to Office Action of: November 16, 2004

**Amendment to the Drawings:**

The attached two sheets of drawings include changes to Fig. 8A and Fig. 11A. The first sheet, which includes Figs. 8A, 9A and 9B, replaces original sheet including Figs. 8A, 9A and 9B. In Figure 8A, one of the reference numbers 105 was replaced with the reference number 105'.

The second sheet, which includes Figs. 11A and 11B, replaces original sheet including Figs. 11A and 11B. In Figure 11A, the reference numbers 13B were replaced, as suggested by the Examiner, by 11B.

Attachment: Replacement Sheets

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### **REMARKS/ARGUMENTS**

Claims 1-22 remain in this application. New claims 23-25 have been added. Claims 1-9 and 17-22 have been withdrawn as a result of the restriction requirement. In view of the examiner's restriction requirement, applicant retains the right to present claims 1-9 and 17-22 in a divisional application.

#### **1. Restriction Requirement**

The Examiner issued a Restriction Requirement identifying the following groups of claims as being drawn to potentially distinct inventions:

- Group I. Claims 1-9, drawn to a non-porous and textured electrolyte sheet, classified in class 252, subclass 62.5;
- Group II. Claims 10-16, drawn to an electrode-electrolyte assembly, classified in class 429, subclass 33; and
- Group III. Claims 17-22, drawn to a method of making an electrolyte sheet, classified in class 264, subclass 618.

The Examiner asserted that these inventions may be regarded as independent and distinct from one another because (i) inventions I and II can be separately usable and (ii) invention II can be made by a different process.

In a telephone conference with the undersigned attorney/agent of record dated 11/9/04, a provisional election to Group II, claims 10-16 was made, without traverse. Applicants hereby confirm that provisional election, without traverse.

As a formality, Applicants hereby withdraw claims 1-9 and 17-22 from consideration, without prejudice.

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### **Drawings**

In the amended Fig. 8A, one of the duplicate reference numbers 105 was replaced with the reference number 105'. In the amended Fig. 11A, as suggested by the Examiner, the reference numbers 13B were replaced by 11B.

### **Claim Objections**

**Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.**

Claim 15 has been amended to specify that the thickness variation is 2 to 10 micrometers. Accordingly, claim 15 is no longer an improper dependent claim.

### **Claim Rejections**

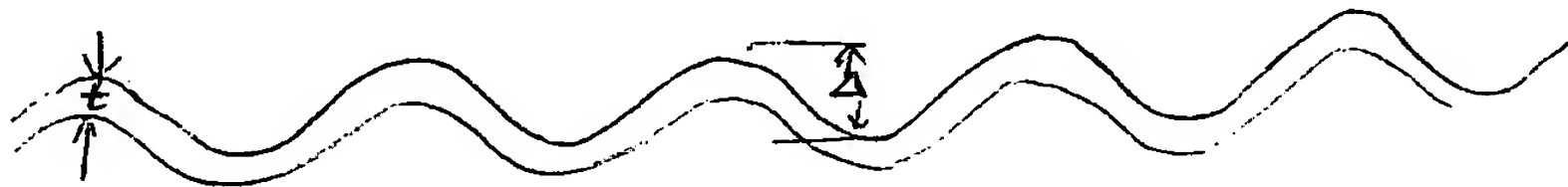
**Claims 10-12 and 15-16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by EP 1113518-A1 (Heifinstine).**

In order for a claim to be anticipated by a reference, every element of this claim has to be disclosed by this reference. Claim 10 is an independent claim. Claims 11, 12 and 15-16 depend from claim 10 as their base claim, and, therefore expressly incorporate the language of claim 10. Claim 10 reads as follows:

10. A solid oxide electrode/electrolyte assembly comprising:
  - a thin electrolyte sheet of varied thickness of an average electrolyte sheet thickness between 3 micrometers and 30 micrometers;
  - at least one cathode disposed on a first surface of said electrolyte sheet;
  - at least one anode disposed opposite the cathode on a second surface of said electrolyte sheet;
  - wherein said electrolyte sheet has a thickness variation of at least 2 micrometers.

The Office Action states “With respect to claims 10 & 15, Heifinstine discusses an electrolyte sheet with the variations of thickness of at least 0.5% of the sheet thickness.” However, this is not correct. The reference discloses “strain tolerance” of 0.5%, not the thickness variation of the sheet, as claimed by the Applicants (see, for example Paragraph [0008] of the reference).

More specifically, strain tolerance means that the sheet can be stretched by 0.5% without breakage. Fig 1a of the cited reference illustrates an exemplary electrolyte sheet. It is illustrated, greatly exaggerated, below.



This sheet has a thickness  $t$  and has a corrugated pattern that forms hills and valleys. The Heifinstine reference does not disclose that thickness  $t$  is variable. The corrugated sheet can be stretched by 0.5%, by making the corrugated pattern shallower, without the change in sheet thickness  $t$ . This is illustrated bellow.



Therefore, because the cited reference does not disclose the feature of “thickness variation of at least 2 micrometers”, claims 10-12 and 15-16 are not obvious over this reference.

**Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1113518-A1 (Heifinstine) in view of US Publication 2001/0044043 (Badding).**

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Claims 13 and 14 depend from claim 10 as their base claim, and, therefore expressly incorporate the language of claim 10. Neither of the two cited references disclose the feature of having an electrolyte sheet with a “thickness variation of at least 2 micrometers”. Therefore, because the cited references, in combination, do not disclose all of the features of claims 13-14, these claims are unobvious over the two cited references.

**Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication 2001/0044043 (Badding) in view of EP 1113518-A1 (Heifinstine).**

In order for a claim to be held obvious over the cited references, all of the features of that claim should be disclosed by the cited references, in combination. However, as stated above, neither of the two cited references disclose the feature of having an electrolyte sheet with a “thickness variation of at least 2 micrometers”. Therefore, because the two cited references, in combination, do not disclose all of the features of claims 10-16, claims 10-16 are not obvious over the two cited references.

#### **New Claims**

Claims 23-25 have been added by this amendment. Claim 23 is similar to claim 10, but specifies that thickness variation be at least 0.5 micrometers. This feature is not new (See, for example, original claim 1). Claim 24 depends from claim 23 as its base claim and further specifies that the surface of the electrolyte be textured with multiple indentations. This feature is not new (see, for example, original claim 1). Claim 25 depends from claim 10 as its base claim also specifies that the surface of the electrolyte be textured with multiple indentations.

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**Conclusion**

Based upon the above amendments, remarks, and papers of records, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that no extension of time is necessary to make this Reply timely. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension, or for any additional claims, to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Svetlana Z. Short at 607-974-0412.

Respectfully submitted,



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